Overview of Power Purchase Agreements in the US

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Overview

- Types of PPAs
- Development of PPAs
- Anatomy of a PPA
Types of PPAs

– Full requirements
– Full requirement slices
– Dispatchable (for example, emergency)
– Unit contingent
– Energy blocks
– Energy swaps
– Capacity commitments
Buyer’s load = supplier’s generation
Full Requirements Slices (4 suppliers)
Dispatchable Power (emergency)

Buyer’s load =
Buyer’s generation + Emergency generation from PPA supplier
Unit Contingent

PPA supply unrelated to Buyer’s load
Buyer must take all of supplier’s output

Any shortfall is purchased elsewhere or generated by Buyer.
Sum of PPA supply does not equal Buyer’s load

Any shortfall is purchased elsewhere or generated by Buyer.
Any overage is sold in spot market (if available)
Influence of Market Structure on Nature of PPA

• With some exceptions and variations, market structure in the USA has evolved from a multitude of isolated utilities to highly integrated networks of multiple wholesale buyers and sellers, load serving entities and generators, some fulfilling multiple roles, all tied together by transmission systems and markets managed by regional transmission organizations (RTOs).
• Electricity is traded both in the RTO markets and in bilateral transactions.
• In this environment, PPAs can be thought of as financial hedging contracts. Examples: Energy swaps and capacity hedges.
Energy Swaps

Financial transaction with a fixed contract price and a variable settlement price

Buyer pays seller fixed contract price and seller pays buyer the variable settlement price, which is observed in the spot market. Serves as a price hedge if both buyer and seller obtain and sell their physical energy in the same spot market.

The quantity is typically (but not necessarily) in blocks, as in the previous example.
Capacity Commitments

• Can be made as part of full requirements, full requirements slices, or other PPAs
• Can be spelled out in availability terms of a PPA
• With the rise of RTOs, multiple load serving entities and multiple resource owners rely on the RTO to coordinate and maintain reliability. Part of that role may involve the RTO buying all rights to call on generation resources, the cost of which is billed to load serving entities. However, bilateral PPAs between market participants can be used to hedge against the pricing results of the RTO capacity auctions.
Development of PPAs

• In USA, nothing stays the same for very long
  – Industry structure changes
  – Policy priorities change
  – Type of PPAs desired and their availability changes accordingly
  – Buyer identifies what it wants (type of PPA, other priorities and constraints)

• Specific content of PPAs reflect experience of buyers and sellers (technical, commercial, and legal experts)

• Specific content of PPAs reflect statutes, regulations, case law, conventions
• Standardized or model PPAs exist, but are tailored to buyer and seller’s priorities and constraints.

• Example: EEI/NEMA “MASTER POWER PURCHASE AND SALE AGREEMENT”
  – 43 pages main document
  – Plus optional provisions and annexes dealing with:
    • Renewable energy credits and similar concepts
    • Specific locales
    • Collateral
    • Various legal matters that may or may not be applicable
  – Buyer and/or Seller may desire additional changes. Need or desire for changes may evolve over time, with experience.
• In Illinois, two largest electric utilities own no generation resources.

• Both are in RTOs and can meet their entire need for electricity by purchases from the RTO at prices determined through competitive processes managed by the RTO, monitored by an independent market monitor, and subject to regulation by a national government authority (the Federal Energy Regulatory Commission).

• However, both utilities are required to follow an electric procurement plan developed by one Illinois State agency (Illinois Power Agency) and approved by another (Illinois Commerce Commission).
• A typical plan calls for the utilities to enter into bilateral PPAs for the purchase of energy blocks over one to three-year periods, to hedge against movements in energy prices set through the RTO’s energy spot market. Shortages or overages are bought or sold in spot market.
• A non-typical plan may also call for utilities to enter into a 20-year unit contingent PPA for electricity produced with renewable energy resources (to fulfill legislative mandates), at above-market prices.
• A non-typical plan may also call for the utilities to enter into a 20-year unit contingent PPA for electricity produced by an experimental “clean coal facility” with carbon capture and sequestration (to fulfill legislative mandates), at above-market prices.
Less Standardized Products = Less Standardized PPA

• Illinois example 1:
  – Standard energy block PPAs largely patterned after standard or model PPAs
    • Standard PPA (and tailoring of same) proposed by utility
    • Potential sellers propose further revisions
    • Illinois Commerce Commission (ICC) resolves disputes
    • Actual sellers identified through competitive process overseen by ICC consultants, Staff, and Commissioners
• **Illinois example 2:**
  – PPA with experimental “clean coal facility” with carbon capture and sequestration (called “FutureGen”)
    • FutureGen awarded opportunity through non-competitive administrative process
    • FutureGen prepared first draft of PPA (approx. 70 pages)
    • Revisions proposed by ICC Staff, utilities (wholesale buyers), and other stakeholders
    • ICC resolves disputes
    • FutureGen (seller) can back out before signing final PPA; utilities (buyers) cannot because of legislative mandate
Anatomy of a PPA

• Goals
  – To unambiguously define what is expected of buyer and seller to avoid later disputes
  – To account for contingencies (to expect the unexpected) to avoid later disputes
  – To clearly describe how to resolve disputes that cannot be avoided
  – To accomplish the above goals within the existing legal framework
FutureGen PPA

• Articles:
  – DEFINITIONS AND RULES OF INTERPRETATION
  – TERM (20 years)
  – CONDITIONS PRECEDENT (what buyer and seller must do first before the rest of the contract becomes effective)
  – DEVELOPMENT, CONSTRUCTION AND COMMERCIAL OPERATION
  – PROJECT COSTS, REGULATORY REVIEW AND CONTRACT PRICE (in this case, the various charges are not specified explicitly, but are defined to be based on actual costs incurred)
FutureGen PPA

- Articles, continued:
  - DELIVERY AND PAYMENT
  - BILLING AND PAYMENT
  - TRANSMISSION, SCHEDULING, DISPATCH AND OPERATION
  - METERING
  - COMPLIANCE WITH APPLICABLE LAWS; GOVERNMENTAL AUTHORIZATIONS
  - REPRESENTATIONS AND WARRANTIES
  - INDEMNIFICATION
  - EARLY TERMINATION (conditions under which buyer or seller can get out of the contract before the end of year 20)
FutureGen PPA

• Articles, continued:
  – DEFAULT AND REMEDIES
  – DISPUTE RESOLUTION
  – FORCE MAJEURE
  – TAXES
  – ASSIGNMENTS
  – SUCCESSORS AND ASSIGNS
  – NOTICES
  – CONFIDENTIALITY
FutureGen PPA

• Articles, continued:
  – MISCELLANEOUS
    • Examination of Records
    • Amendments
    • Waivers
    • Survival of Obligations
    • Severability
    • Complete Agreement
    • Merger
    • Counterparts
    • Third Party Beneficiaries and Dedication
    • Governing Law
    • Designation of Forum
    • Waiver of Right to Contest Jurisdiction and Jury Trial
FutureGen PPA

- Articles, continued:
  - Exhibits
    - Exhibit 1.1-A - Delivery Point
    - Exhibit 1.1-B - Project Costs
    - Exhibit 1.1-C - Project Description
    - Exhibit 1.1-D - Alliance Members
    - Exhibit 1.1-E - FERC Section 205 Authorization
    - Exhibit 3.1(a)(i) - Governmental Authorizations
    - Exhibit 5.2(a) - Formula Rate
    - Exhibit 5.2(c) - Sources and Uses of Funds
    - Exhibit 5.2(d) - Contract Price Components
    - Exhibit 6.3 - Rate Cap Limit
    - Exhibit 6.4(c) - Minimum Annual Energy and Shortfall Payments
    - Exhibit 16.2(b) - Lender Consent Provisions
    - Exhibit 22.2 - Addresses for Notices